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10/784,498	02/23/2004	Dmitry Grebenev	063170.6658	2208

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BAKER BOTTS L.L.P.
2001 ROSS AVENUE
SUITE 600
DALLAS, TX 75201-2980

EXAMINER
MEHRMANESH, ELMIRA

ART UNIT	PAPER NUMBER
2113	

NOTIFICATION DATE	DELIVERY MODE
11/04/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail1@bakerbotts.com
glenda.orrantia@bakerbotts.com

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)	
Office Action Summary	10/784,498	GREBENEV, DMITRY	
	Examiner	Art Unit	
	Elmira Mehrmanesh	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>01 July 2008</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-21</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-21</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>23 February 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 5

DETAILED ACTION

This action is in response to an amendment filed on July 1, 2008 for the

application of Grebenev, for a "Kernel-level method of flagging problems in applications"

filed February 23, 2004.

Claims 1-21 are pending in the present application.

Claims 1-12, 14, 15, 17, 19, and 20 have been amended.

Claim 21 has been added.

Claims 1, 4-19, and 21 are rejected under 35 USC § 102.

Claims 2, 3, and 20 is rejected under 35 USC § 103.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated

by Chen et al. (U.S. Patent No. 5,684,945).

As per claim 1, Chen discloses a method of identifying problems in applications

(Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a

kernel level system resource usage of one or more running (col. 26, lines 31-35 and 49-

52) and (col. 94, lines 10-12, wherein Chen discloses "... *process parameter, e.g.,*

*process ID (PID), process name, process priority, **userid of the process owner,***

***process memory utilization**, CPU utilization, page faults, etc.*") without modifying run-

time environments of the one or more user applications (col. 21, lines 65-69 through col.

22, lines 1-2 and 42-52) and

      from the monitored system usage, determining whether a system usage pattern

of a first application satisfies a predetermined criteria associated with one or more

problems (col. 92, lines 56-60); and if the system usage pattern of the first application

satisfies the predetermined criteria (col. 87, lines 53-56), identifying the first application

to a user (col. 16, lines 19-23).

      As per claim 4, Chen discloses the system resource usage comprises memory

usage of the one or more running applications (col. 26, lines 49-52).

      As per claim 5, Chen discloses monitoring at a kernel level system resource

usage of one or more running applications comprises monitoring at a kernel level

system resource usage of one or more running processes belonging to one or more

user applications (col. 6, lines 61-63) and (col. 94, lines 10-12) wherein the one or more

applications comprise one or more applications initiated at the user level and the one or

more running processes comprise one or more processes initiated at the kernel level by

the one or more user applications (col. 90, lines 63-65).

As per claim 6, Chen discloses the system resource usage of the one or more

running processes is monitored over a plurality of consecutive discrete time periods

(col. 92, TABLE 66).

As per claim 7, Chen discloses the system resource usage comprises an amount

of memory usage for each of the one or more applications; and the predetermined

criteria is a limit on a number of memory increases allowed during the plurality of time

periods, an increase in amount of the system resource usage from a first period to a

second period (col. 92, lines 23-67 through col. 93, lines 6-10).

As per claim 8, Chen discloses the system resource usage comprises an amount

of memory usage for each of the one or more applications; (col. 94, lines 10-12, wherein

Chen discloses "... *process parameter, e.g., process ID (PID), process name, process*

*priority, **userid of the process owner, process memory utilization**, CPU utilization,*

page faults, etc."); and the predetermined criteria is a generally continuous increase in

the amount of memory usage during the plurality of time periods (col. 92, lines 23-67

through col. 93, lines 6-10).

As per claim 9, Chen discloses the system resource usage comprises a number

of the processes that each of the one or more applications have spawned; and

the predetermined criteria is a generally continuous increase in the number of child

processes spawned during the plurality of time periods (col. 93, lines 13-29) and (col. 94, lines 8-26).

As per claim 10, Chen discloses identifying the first application to a user comprises saving an identifier of the first application in a reference file, and further comprising saving identifiers (col. 26, lines 38-63) of any other of the one or more applications whose system usage pattern satisfies a predetermined criteria associated with one or more problems in the reference file (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*); and the predetermined criteria is a generally continuous increase in the amount of memory usage during the plurality of time periods (col. 92, lines 23-67 through col. 93, lines 6-10).

As per claim 11, Chen discloses a computer automatically monitors the kernel level system resource usage of one or more running applications; determines whether a system usage pattern of a first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and identifies the first application (col. 90, lines 63-65).

As per claim 12, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running (col. 26, lines 31-35 and 49-52) and (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, **userid of the process owner, process memory utilization**, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52) and

producing an output comprising at least the memory usage (col. 9, lines 41-51, *data display system*); and

from the monitored system usage (col. 16, lines 19-23, *threshold alarm*), determining whether a memory usage pattern of a first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

if the memory usage pattern of the first application satisfies the predetermined criteria, identifying the first application to a user (col. 87, lines 53-56).

As per claim 13, Chen discloses the memory usage of the one or more running processes is monitored over a plurality of consecutive discrete time periods, and the predetermined criteria is a limit on a number of memory increases allowed during the plurality of time periods (col. 92, lines 23-67 through col. 93, lines 6-10).

As per claim 14, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running processes (col. 26, lines 31-35 and 49-52) belonging to one or more user applications (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, **userid of the process owner, process memory utilization**, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52) and

producing an output comprising at least the memory usage (col. 9, lines 41-51, *data display system*); and

respectively liking each of the one or more running processes to each of the one or more user applications (col. 94, lines 8-12, ***userid of the process owner***)

producing an output comprising at least the memory usage of one or more user applications (col. 9, lines 41-51, *data display system*)

and from the output, determine whether a memory usage pattern of a first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and if the memory usage pattern of the first application satisfies the predetermined criteria, identify the first application (col. 87, lines 53-56) by saving an identifier of the first application in a reference file (col. 88, lines 5-18).

As per claim 15, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running processes (col. 26, lines 31-35 and 49-52) belonging to one or more user applications (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, **userid of the process owner, process memory utilization**, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52) and

from the monitored system usage (col. 16, lines 19-23, *threshold alarm*), determining whether a memory usage pattern of a first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

if the memory usage pattern of the first application satisfies the predetermined criteria, identifying the first application to a user (col. 87, lines 53-56) the first running application without identifying the one or more running applications whose memory usage patterns do not satisfy the predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60).

As per claim 16, Chen discloses the monitored memory usage comprises at least a stack memory, data memory, and text memory (col. 26, lines 49-63).

As per claim 17, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

collecting system resource usage (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running processes (col. 26, lines 31-35 and 49-52) belonging to one or more applications (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority,* **userid of the process owner, process memory utilization,** *CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52) and

from the collected system resource usage (col. 16, lines 19-23, *threshold alarm*), determining whether a memory usage pattern of a first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

if the memory usage pattern of the first application satisfies the predetermined criteria, identifying the first application to a user (col. 87, lines 53-56).

As per claim 18, Chen discloses a system for identifying problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

a data collection module (col. 69, line 35) operable to retrieve information about a running user applications application at a kernel level (col. 90, lines 63-64); and

a data analysis module (col. 86, lines 66-67 through col. 87, lines 1-15) operable to determine from the retrieved information an abnormal system usage pattern in the information; and identify from the abnormal system usage pattern, an a first user application whose system usage pattern satisfies a predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60).

As per claim 19, Chen discloses a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps of identifying problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system resource usage of one or more running applications (col. 26, lines 31-35 and 49-52) and (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, **userid of the process owner, process memory utilization**, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52) and

from the monitored system usage (col. 16, lines 19-23, *threshold alarm*), determining whether a memory usage pattern of a first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

if the memory usage pattern of the first application satisfies the predetermined

criteria, identifying the first application to a user (col. 87, lines 53-56).

As per claim 21 Chen discloses comparing the monitored system usage for the

first application against the predetermined criteria (col. 94, lines 8-12); and

selecting the first application from the one or more running applications if the

system usage pattern of the first application satisfies the predetermined criteria (col. 16,

lines 19-23), (col. 87, lines 53-56), and (col. 92, lines 56-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this
title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a
whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said
subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.,* 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
      obviousness or nonobviousness.

Claims 2, 3, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Chen et al. (U.S. Patent No. 5,684,945) in view of Lawlor et al. (U.S. Patent No.

5,485,626).

As per claim 2, Chen discloses of monitoring processes (col. 93, lines 13-29).

However Chen fails to explicitly disclose a predetermined limit on the number of

processes that each of the one or more user applications may spawn.

Lawlor teaches:

the system resource usage comprises a number of the one or more processes

that each of the one or more user applications have spawned and the predetermined

criteria comprises a predetermined limit on the number of processes that each of the

one or more user applications may spawn (col. 47, lines 28-42).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to use the method of enhancing of parallel processing of applications of

Lawlor in combination with the performance monitoring system of Chen to enhance the

system performance.

One of ordinary skill in the art at the time of the invention would have been

motivated to make the combination because both inventions disclose a method for

enhancing performance of a system (Chen, Abstract) and (Lawlor, col. 7, lines 5-14).

Both inventions also disclose monitoring (Chen, col. 93, lines 13-29) and (Lawlor, col.

11, lines 61-67).

As per claims 3 and 20, Chen discloses the system resource usage comprises a parent-child relationship between each of the one or more processes and each of the one or more user applications (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) comprises monitoring a parent-child relationship between each of the one or more processes and each of the one or more user applications (col. 94, lines 10-12, wherein Chen discloses *"… process parameter, e.g., process ID (PID), process name, process priority, **userid of the process owner, process memory utilization**, CPU utilization, page faults, etc."*); and determining whether a system usage pattern of a first application satisfies a predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60);

Lawlor teaches:

comprises determining whether the first application has orphaned a process (col. 47, lines 28-42).

Response to Arguments

Applicant's arguments filed July 1, 2008 with respect to claims 1, 12, 14, 15, 17, 18, and 19 have been fully considered but they are not persuasive.

Chen discloses monitoring processes for their kernel level system resource usage [*process parameter, e.g., process ID (PID), process name, process priority, **userid of the process owner, process memory utilization**, CPU utilization, page faults, etc.* (col. 94, lines 10-12)].

Chen further discloses filtering applications based on the above monitoring [from the monitored system usage (col. 16, lines 19-23) identifying to a user a first user application whose system usage pattern satisfies a predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60)]. Chen's monitoring and filtering of applications reads on the limitations of the independent claims.

Applicant's arguments filed July 1, 2008 with respect to claim 2 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over Chen et al. (U.S. Patent No. 5,684,945) in view of Lawlor et al. (U.S. Patent No. 5,485,626). Refer to the corresponding section of the claim analysis for details.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmira Mehrmanesh whose telephone number is (571) 272-5531. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Robert W. Beausoliel, Jr./
Supervisory Patent Examiner, Art Unit 2113